Introducing ASPIRE

The ASPIRE Project (Augmenting Specialty crop Pollination through Integrated Research and Education) is a team of researchers, educators, consultants, businesses, and stakeholders who are working together to ensure that specialty crop growers can maintain high levels of pollination. This multi-year project is supported by the USDA’s Specialty Crops Research Initiative, with an equal level of support from a broad range of stakeholders including growers, companies, federal agencies, and our host institutions. In this first newsletter, we will introduce you to the project goals and highlight some activities of our diverse team. We hope to see you at one of our 2013 extension meetings!

Why this project?
Movement of pollen between flowers to achieve pollination is a critical step in the production of many of our most economically important, nutritious, and delicious crops. Without full pollination, fruits, vegetables, and nuts may have lower yield, lower quality, and lower levels of vitamins and antioxidants. So, it is critical that growers have access to research-based information on how best to pollinate their fields and orchards. Given the importance of bees for pollen movement in these ‘specialty’ crops, there is significant concern over declining trends in pollinator populations, in particular the honey bee colonies and native bumble bees that are important crop pollinators.

Determining management practices that encourage native bees and other pollinators has the potential to supplement and enhance pollination services provided by honey bees. Beekeepers are finding novel solutions to provide enough colonies when crops are in bloom, and in some cases reliance on honey bees may be the most cost-effective approach for growers.

What will the ASPIRE Team be doing?
In this 5 year project, we will explore the potential benefits of diversifying the sources of pollination to determine the current importance of native bees in pollination of apple, cherry, almond, blueberry, raspberry, squash, and watermelon. This will include investigations of bumble bee colonies, blue orchard bees, and enhancement of unmanaged native bee populations and determination of their performance in comparison with honey bees. Our long-term goal is to provide growers of these crops with practical guidance on how to most economically provide reliable and robust pollination from year to year. This will include best management guidelines for each different strategy and information on the crop, farm type, and landscape context where different approaches might work best. Involvement of economists and social scientists on the team along with applied entomologists, ecologists, apiculturalists, native bee taxonomists, extension specialists, and growers will help ensure that the results are relevant to growers and their decision-making when considering their crop’s pollination.

What are the project objectives?
Over the coming years, our team will be focused on these five objectives:
1) Identify economically important wild pollinators and factors affecting their abundance.
2) Evaluate habitat management practices to improve crop pollination.
3) Determine performance of alternative managed bees as specialty crop pollinators.
4) Deliver Integrated Crop Pollination (ICP) practices for specialty crop producers.
5) Determine optimal methods for ICP information delivery and measure ICP adoption.

What next?
In preparation for our first growing season in 2013, our team is busy hiring new staff, locating research sites and finalizing our sampling and outreach plans. We are excited to get started, and we welcome feedback and input on the project. A good starting place is to visit our website at our website: www.aspire4bees.org.

Rufus Isaacs
Project Director
Michigan State University

ASPIRE was chosen as the name for this project after team members submitted descriptive acronyms and held a vote to select a winner from these entries. Congratulations to Dr. Sujaya Rao of Oregon State University for her winning entry. Your prize is on the way!
Establishing Wildflower Plantings in California Almond

As part of the first phase of development of the ASPIRE Project working in California almonds, Kimiora Ward, Research Associate in Dr. Neal Williams’ lab in the UC-Davis Department of Entomology, and I met with Gordon Wardell, Senior Bee Biologist at Paramount Farming Company to establish wildflower plantings of seven bee-friendly plants near Lost Hills, CA in late October.

Our goal was to have both early and late plantings in order to monitor plant establishment and flower phenology under southern California environmental conditions. Kimiora, an expert in plant restoration ecology, identified and developed seed mixes of seven bee-friendly plants, which were used in the experimental plantings. The seven plant species used were *Phacelia ciliata*, *P. campanularia*, *Collinsia heterophylla*, *Eschscholzia californica*, *Lupinus bicolor*, *Nemophila maculata*, and *N. menziesii*.

Several weeks prior to planting, Paramount Farms personnel prepared the experimental plot that was pre-treated for weeds, tilled, and 6 ft. x 272 ft. beds were made. We used a Brillion broadcast seeder to sow seeds in two stocking densities—45 seeds per ft² and 90 seeds per ft² to test which stocking density promoted the best seedling establishment and plant growth while competing with weeds. In our experimental plot, we also designated areas that would be sowed late (early December) using the same two seed mixes.

The experimental plantings were assigned to two irrigation treatments: irrigation or no irrigation, and each of the beds was divided in half; one half will be weeded by hand and the other half will have no weed control.

This planting design will yield valuable information on the importance of stocking density, sowing time, and irrigation on establishment, weed exclusion and bloom time of the wildflower mix. In addition to the beds that were sowed with a mixture of the seven wildflower species, we also hand-sown 10 ft. x 10 ft. areas of single-species plots in order to monitor plant establishment and flower phenology over time.

Derek R. Artz  
USDA-ARS Pollinating Insect Research Unit
Xerces Pollinator Habitat Installation Guides

The Xerces Society is finishing up Pollinator Habitat Installation Guides for several regions of the country: New England, Pennsylvania, New Jersey, Florida, Upper Midwest, and Western Oregon and Washington.

These guides give in-depth step-by-step instructions for creating and maintaining pollen- and nectar-rich wildflower meadows and flowering hedgerows for the benefit of pollinators. Each guide provides sample plant mixes and recommended plant species for their specific regions as well as resources for additional information.

As they become available, we are posting them at http://www.xerces.org/pollinator-resource-center/

We also will be creating a web portal where they can all be accessed easily.

Mace Vaughn
Xerces Society

Grower Survey Design and Development

Our preparations for 2013 include designing a grower survey to help us learn more about pollinator management. In a nutshell, we’re interested in understanding how growers make pollination management decisions, particularly which information sources and communication channels can be used to support Integrated Crop Pollination (ICP). An important part of this work is talking with growers about how to design our survey; the goal is to have questions that “read well” and touch on the most important aspects of pollinator management.

We held our first survey design workshop in early December at the Michigan Fruit and Vegetable Expo in Grand Rapids, MI. We worked with 19 growers who gave helpful input on how to improve our working draft. A highlight of this workshop was learning how participants rank the usefulness of information sources on pollinator management (figure at right). Participants ranked attending meetings; making personal observations of field conditions; and reading print materials as the three most useful sources, respectively.

As the ASPIRE project unfolds, we will continue to develop our grower survey and use results to guide our outreach efforts. We welcome your input on our survey and outreach approach; please send comments or questions to Kelly Garbach, kgarbach@luc.edu.
Introducing two essential team members....

**ASPIRE Project Manager**  
Keith Mason  
Keith is the ASPIRE Project Manager. His main function is to manage and standardize data collection and reporting across the fifteen institutions and four crops in this project. Keith has worked with Rufus Isaacs in the Berry Crops Entomology lab at MSU since 2000, where he has been lab manager and in charge of the on-farm research program in blueberry farms and vineyards in Michigan. Keith recently started a Ph.D. program, studying monitoring and mating of grape berry moth, a pest of grapes in the eastern US. Keith lives in Lansing, Michigan with his wife Julienne and two great kids, Lindsey (14) and Justin (11).

**Administrative Assistant**  
Brooke Gallagher  
Brooke is the Administrative Assistant for the ASPIRE Project and for other SCRI-funded research in the Department of Entomology at MSU. She has many years of experience working with the Michigan team members, and has been hard at work since the summer getting the subaward contracts set up for each of the collaborating institutions. Brooke will also manage the budgets for the project as it develops, and has been coordinating the annual team meeting.

**Annual Meeting coming soon...**

The first meeting of the ASPIRE Project team will be held in Gainesville, FL from Jan 17-19, 2013. This is an opportunity to get everyone in the project coordinated for the coming first field season. Objective leaders will update the whole group on progress so far, and our plans moving forward with the project. Xerces will roll out an outreach workplan for discussion that highlights the publications and events we all will be organizing over the next five years. Project partners will also have a chance to review and suggest edits for an ASPIRE Project brochure that summarizes the work we are all doing. The second day will include a workshop on bee collecting, identification, and databasing, as well as a visit to see pollinator habitat at a nearby fruit and vegetable farm. Our advisory committee will also have an opportunity to provide valuable input on our project’s direction. Thanks to our colleagues at the University of Florida for hosting this meeting. Look for a report of this meeting in the next edition!
Visit the ASPIRE Project website at www.aspire4bees.org
Recent presentations on the ASPIRE Project

During August, team members contributed to a symposium at the Ecological Society of America meeting in Portland Oregon. Neal Williams and Rachael Winfree were organizers, and the symposium included talks by both of them plus team members Elizabeth Elle and Rufus Isaacs. Rufus’ talk addressed some of the aspects of the ASPIRE Project and what we are learning about how to integrate habitat for bees into farms (Objective 2). A similar presentation was delivered by Rufus in early October to a meeting jointly organized by Apimondia (International Federation of Beekeepers) and the Food and Agriculture Organization, and held in San Marino.

Participating Institutions and Organizations

**Michigan State University**
- Rufus Isaacs, Larry Gut, Nikki Rothwell, and Julianna Wilson
- AgPollen, LLC
  - Steve Peterson
- Chicago Botanical Garden
  - Eric Lonsdorf
- Loyola University, Chicago
  - Kelly Garbach
- Oregon State University
  - Sujaya Rao
- Pennsylvania State University
  - Shelby Fleischer and David Biddinger
- Rutgers University
  - Rachael Winfree
- Simon Fraser University
  - Elizabeth Elle

**University of California, Berkeley**
- Claire Kremen

**University of California, Davis**
- Neal Williams, Karen Kionsky, and Mark Lubell

**University of Florida**
- Jamie Ellis and Jaret Daniels

**University of Vermont**
- Taylor Ricketts

**USDA-ARS Pollinating Insects Lab**
- Theresa Pitts-Singer, Jim Cane, and Jamie Strange

**Wenatchee Valley College**
- Bob Gillespie

**The Xerces Society**
- Mace Vaughn and Jennifer Hopwood

In the Next Issue...

The next issue of ASPIRE News is scheduled for early Fall 2013. In that issue we hope to present the first look at the data collected from the cooperating farms across the project.

We will also highlight some of the ongoing research by project partners, and report on our summer extension meetings.